

Silicon NPN Power Transistors

MJE16004

DESCRIPTION

- With TO-220 package
- High voltage ,high speed

APPLICATIONS

- Switching regulators
- High resolution deflection circuits
- Inverters
- Motor drives

PINNING

PIN	DESCRIPTION
1	Base
2	Collector
3	Emitter

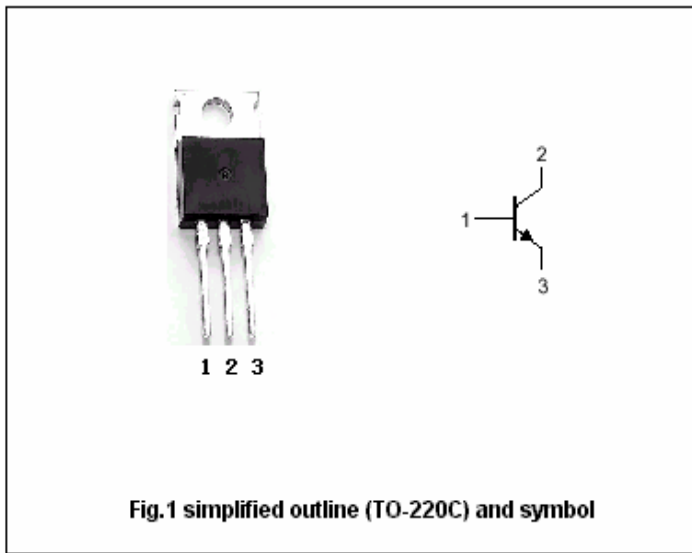


Fig.1 simplified outline (TO-220C) and symbol

ABSOLUTE MAXIMUM RATINGS(T<sub>C</sub>=25°C)

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	Open emitter	850	V
V <sub>CEO</sub>	Collector-emitter voltage	Open base	450	V
V <sub>EBO</sub>	Emitter-base voltage	Open collector	6	V
I <sub>C</sub>	Collector current (DC)		5	A
I <sub>CM</sub>	Collector current-Peak		10	A
I <sub>B</sub>	Base current		4	A
I <sub>BM</sub>	Base current-Peak		8	A
P <sub>D</sub>	Total power dissipation	T <sub>C</sub> =25°C	80	W
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-65~150	°C

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
R <sub>th j-c</sub>	Thermal resistance junction to case	1.56	°C/W

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## CHARACTERISTICS

T<sub>j</sub>=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	I <sub>C</sub> =100mA; I <sub>B</sub> =0	450			V
V <sub>CE(sat)-1</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =1.5A; I <sub>B</sub> =0.15A			1.0	V
V <sub>CE(sat)-2</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.3A T <sub>C</sub> =100°C			2.5 2.5	V
V <sub>BE(sat)</sub>	Base-emitter saturation voltage	I <sub>C</sub> =3A; I <sub>B</sub> =0.3A T <sub>C</sub> =100°C			1.5 1.5	V
I <sub>CEV</sub>	Collector cut-off current	V <sub>CEV</sub> =850V; V <sub>BE</sub> =1.5V T <sub>C</sub> =100°C			0.25 1.5	mA
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =6V; I <sub>C</sub> =0			1.0	mA
h <sub>FE</sub>	DC current gain	I <sub>C</sub> =5A; V <sub>CE</sub> =5V	7			
C <sub>OB</sub>	Collector outoput capacitance	I <sub>E</sub> =0; V <sub>CB</sub> =10V; f=1.0kHz			200	pF

Switching times resistive load, Duty Cycle≤2.0%, Pulse Width=30μs

t <sub>d</sub>	Delay time	V <sub>CC</sub> =250V, I <sub>C</sub> =3A I <sub>B1</sub> =0.3A; I <sub>B2</sub> =0.6A			0.1	μs
t <sub>r</sub>	Rise time				0.3	μs
t <sub>s</sub>	Storage time				2.7	μs
t <sub>f</sub>	Fall time				0.35	μs

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PACKAGE OUTLINE

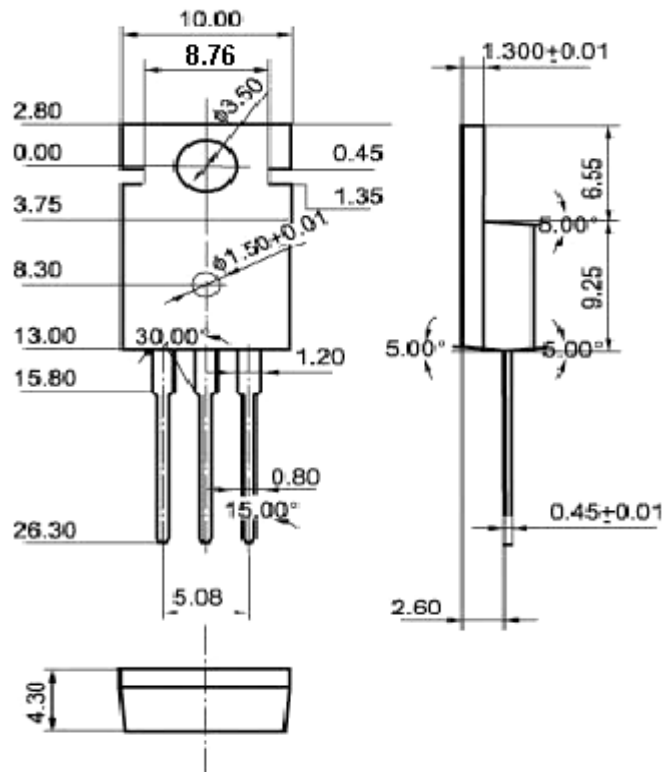


Fig.2 Outline dimensions (unindicated tolerance: 0.10mm)